Changes in the Affordability of Higher Education

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For the class of 2004 the average amount of debt was $19,200. This paper seeks to explain why students are carrying so much more debt than they have in the past and whether or not students are taking out burdensome amounts of debt. The main findings of this paper are that students are taking out more loans because college price has risen faster than grants. And that the decrease in grant aid is due to the government shifting away from providing mostly grant aid to mostly loan aid. The other main finding of this paper is that although students are taking out larger amounts of debt, they are generally not burdened by it after graduation. Section one of the paper introduces the topic of student aid and explains why people borrow. Section two explains the history of student aid. Section three evaluates how college affordability has changed over time. Section four is an empirical analysis of how college price, family income, grants, and the wage ratio of high school to college graduates affects student loans. And section five concludes the results and makes recommendations.
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Section I

Introduction

The average amount of debt of 2004 college graduates was $19,200.1 Currently, student loans are the fourth largest contributor to consumer debt, after home mortgages, car loans, and credit cards. For many people, going to college and acquiring student loans are their first foray into indebtedness. The college years also happen to be when many people acquire their first credit card, the third largest contributor. Having debt is not necessarily a bad thing. Students take out loans to go to college because there is a very large return on their investment. Also, fast growing industries such as information technology and the life sciences require an educated, highly skilled, and adaptable work force.2

The focus of this thesis is to explore the relationship between federal student loans and grants on the affordability of college. Has college become more affordable or are students forced to take out burdensome amounts of loans that exacerbate the two trillion dollar consumer debt problem? The first section of this paper outlines the history of student aid, explaining all of the different programs and legislation that brought about the current system. The second section explains how college affordability has changed over time. The last section is an empirical analysis of how key variables like college price, grants, and family income, affect student loan debt. The ultimate goal is to paint a clear picture of how financing college has changed over time, the legislation leading to those changes, and to determine if students have been increasingly burdened by debt.

“When Ann Radcliffe, a London widow, gave Harvard College one of its first big gifts in 1643, she specified that it be used to pay the tuition of a ‘poor scholar.’ The first recipient of the scholarship was Joseph Weld, the son of the Harvard trustee who had solicited the gift. Three hundred-odd years later, the American system of financial aid found itself on firmer footing, thanks largely to the G.I. bill of 1944.”3 Until 1944 the United States government did not provide any assistance for college. That year, the dam on student aid was broken with the passage of the famous GI bill. Since then, the government has taken an active role in making college more affordable and accessible to everyone by creating a steady stream of entitlement programs. Today, the availability of credit has made college more accessible but not necessarily more affordable. For example, private student lending companies Astrive and Think both advertise that students can borrow up to $40,000 a year, and receive a check in about a week.

Demand for college has become so large that people are willing to accept higher and higher debt burdens. The cost of a four year degree is more expensive than ever before. For the school year 2007-2008, the average cost of tuition at a four year private school is $23,712. This is up 6.3 percent from last year (2006-2007). The average cost of tuition at a four year public school is $6,185. This is up 6.6 percent from last year (2006-2007).4

Why Students Borrow

Despite higher costs, a college education is still a rational investment because it is paramount in increasing one’s earning potential. An individual with a college degree earns over 60 percent more in a lifetime than a person with only a high school diploma.5 However, having a

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college education does not guarantee this exact amount. The schooling-earnings relationship is only very strong in the average population. The standard error in predicting earnings is actually very large for the individual, meaning that there is a wide variation of individual earnings from the mean. Yet, there is still a strong systematic relationship between education and personal economic success. It is a rational decision where some get more out of their investment than others.

The investment in higher education increases one’s earnings by increasing one’s human capital. “Human capital is the stock of skills and productive knowledge embodied in people. The yield or return on human capital investment lies in enhancing a person’s skills and earning power, and in increasing the efficiency of economic decision-making...” Human capital is not tied to a single firm and can be transferred from one firm to another without loss of value. For example, critical thinking and problem solving skills do not diminish in a person when they choose to switch jobs. The concept of improving our lives by increasing our skills is an old idea. In The Wealth of Nations, Adam Smith notes that the improvement of workers’ skills is an important cause of economic progress and improving economic welfare.

The human capital model posits that we invest in ourselves by going to college because we see a future return on our investment. Full time students forgo income for a four year period and pay for tuition and books in order to attain greater lifetime earnings. One of the predictions of the human capital model is that college attendance will increase if the gap between the earnings of college graduates and high school graduates widens. This gap has been increasing

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7 Ibid., Vol. 2 Pg. 682
8 Ibid., Vol. 2 Pg. 684
since the mid 1970s. In 1975 the ratio of mean earnings of college to high school graduates ages 25-34 was 1.16 for males and 1.29 for females. In 2006 that ratio was 1.77 for males and 1.86 for females.\(^\text{10}\) The wage gap shows the alternative of not going to college as increasingly undesirable.

\begin{center}
\textbf{Alternative Earning streams}
\end{center}

\begin{figure}
\centering
\includegraphics[width=\textwidth]{alternative_earning_streams.png}
\caption{Alternative earning streams}
\end{figure}

The graph above depicts the two different paths students can take when they graduate high school. Stream A is going to work right after graduation and stream in B is going to college. The graph shows how for four years (18-22) earnings are negative due to the costs of tuition and books. Room and board are not included because these are things that must be paid for even if someone did not go to college. After college graduation the earnings of stream B quickly rise and surpass stream A and then continue to increase steeply. The area between stream B and stream A is the gross benefit of going to college.

Students are rational agents and will invest in higher education up to the point where the marginal rate of return equals the opportunity cost function. The opportunity cost is the next best alternative that a student has. For a high school graduate, the opportunity cost of going to college is working. Jobs that do not require a college education are paying less and less. Even though the monetary cost of attending college has risen, the opportunity cost of going to college has actually decreased, thus making going to college more desirable. Due to these factors more students than ever before are going to college and borrowing larger amounts of money to pay for it. As of 2006, about two-thirds of recent graduates carried student loans. A student's average amount of debt has increased by more than 50 percent (adjusted for inflation) in the last ten years.\(^\text{11}\)

A Review of the Literature

There has been a lot of research on the cause of student loan defaults. Volkwein [1998], et al found that variables reducing or increasing defaults are the same across minority and majority populations. The reason why minorities default more is because they are more influenced by these variables.\(^\text{12}\) Other studies have aimed to predict student loans by looking at human behavioral characteristics. Flint [1997] found that students' satisfaction with their college has an impact on their loan repayment and that willingness to pay could be more important than ability to pay.\(^\text{13}\)

A paper by Heller measures how increases in college price and decreases in aid affect college attendance. The study found that students are sensitive to increases in tuition. For every


$100 increase in tuition there was a 0.5 to 1.0 percent drop in enrollment. It is noted in the study that this finding was based data from the 1970’s and 1980’s and that the effect may be greater due to the current higher tuition levels. The study also found that students are also sensitive to the amount of aid they receive. A decrease in aid leads to a decrease in enrollment, though enrollment is more sensitive to grant awards than to loans or work study. When different income groups were studied it was found that lower-income students are more sensitive to changes in tuition and aid than are students from middle-and upper-income families. This is most likely because upper income families have more financial assets that can be sold to raise the capital to pay for college. A poorer family would not be able to absorb the shock of a tuition increase.\textsuperscript{14}

Many articles and tables relating to student debt can be found at the National Center for Education Statistics (www.nces.gov). Surprisingly, empirical studies of how variables affect the amount borrowed are scarce. However, in 1972 an interesting study done by Hartman that discussed the effect of tuition increases on educational attainment, income distribution, and mobility. One of the conclusions it came to was that social mobility could be attained or at least improved by a system of grants to students from low income families.\textsuperscript{15}


Section II

The History of Student Aid

The purpose of this section is to explain the history of the student loan industry. It explains what the government has done over the years to keep up with the rising demand and costs of college. It also explains how the student loan industry functions as a financial market in the economy as well as the important pieces of legislature currently working their way through congress. Finally, it examines the controversies and scandals that are presently facing the industry.

The first federal funding for higher education started in 1944 with the Serviceman’s Readjustment Act, known as the GI Bill. This bill helped 2.3 million World War II veterans attend colleges and universities. It provided veterans with $500 a year to pay for college, about $6,000 in 2008 dollars. At the time this was enough to cover tuition on almost every campus in the country at the time. The goal of this bill was to help the transition from soldier to worker by giving veterans the ability to pursue training and education. See table 1 of the appendix for a summary description of the student assistance programs discussed.

The first legislation on student aid was passed as a result of World War II. The second piece of legislation was a result of the Cold War. In 1958, the National Defense Education Act (NDEA) was passed. The United States was caught off guard the year before when Russia was the first to launch a satellite into space. The purpose of the NDEA was to give aid in the form of student loans to people that wanted to study math, science, or modern languages. The United

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States knew it needed to play “catch up” with regard to these subjects. The NDEA also introduced the principle that the student should be the primary beneficiary of aid, rather than the institution. This loan program is now known as the Perkins Loan Program. It is given to needy students and the school both disburses and collects the loans. Eligibility for the Perkins loan is determined by the Department of Education.

In 1965 congress passed the Higher Education Act (HEA). President Lyndon Johnson declared that because of the HEA, “a high school senior anywhere in this great land of ours can apply to any college or university in any of the 50 states and not be turned away because the family is poor.” The HEA is the legislation that covers all funding for federal student aid in all areas of education. The portion that deals directly with student aid is title IV. The HEA is an act that must be reauthorized by congress about twice a decade. Reauthorization starts a year before it expires in order to allow discussion of proposed adjustments. Under title IV are the Guaranteed Student Loan program (GSL) (known as the Stafford Loan Program) and the Educational Opportunity Grant, (EOG) (known as the Pell grant). The GSL program provides low interest loans to students through banks. The loan is guaranteed by the government: if default occurs the government must reimburse the bank. The Pell grant is a need-based grant for low income students. It does not need to be paid back.

In 1980 congress passed the PLUS loan program to meet the needs of families that do not qualify as low income but still need some financial assistance to pay for college expenses. PLUS

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19 www.onestudentloan.com
stands for Parent Loan for Undergraduates. This program gives low interest loans to parents to pay for their child’s education. Also in 1980, the government made it possible for people to consolidate their loans into a single payment and extend their repayment period. In 1988 the Guaranteed Loans were renamed Stafford loans after Senator Robert Stafford of Vermont. Four years later the entire program of guaranteed loans, including the Stafford loan and the PLUS loan, was renamed the Federal Family Education Loan Program (FFELP). Since 1966, more than 134 million loans have been issued under the FFELP. This totals more than $416 billion in federal student loans.  

Beginning in 1989, student loan borrowers are required to receive financial aid counseling before borrowing. In 1991 the government no longer allowed schools with high default rates to participate in the GSL Program. After a one year pilot program in 1993, congress passed the Federal Direct Loan Program (FDLP). These loans are given directly from the federal government rather than through a bank.

**The FFELP and FDLP**

The following is a closer look at the FFELP, the FDLP, and Pell grants to see how these programs have changed over time. The Stafford loan (part of the FFELP) started out as a small program to give subsidized loans to middle income students. In 1975 the Stafford loan comprised less than half of all student aid. In 1977 the family income cap was removed from the Stafford loan making a Stafford unsubsidized loan available to everyone. Before the cap was taken off, the Stafford Loan was a needs based loan, meaning that a person’s financial situation had to necessitate a certain need for the loan in accordance with the government’s terms.

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21 “Sallie Mae - Private Student Loans, Stafford, PLUS, Student Loan Consolidation.” Sallie Mae - Private Student Loans, Stafford, PLUS, Student Loan Consolidation. 12 Apr. 2008 <http://www2.salliemae.com/NR/rdonlyres/1ACF9078-F878-41B0-87D0-8B92E46032C0/0/S>
With a subsidized loan, the interest on the loan is paid by the Department of Education while the student is enrolled at least half-time and then for six months after graduation or ceasing to enroll half-time. The interest is also paid if the student needs to take out a deferment. A deferment could be caused by unemployment or because the student returns to school. In an unsubsidized student loan, the student is responsible for all interest that accrues on the loan from the time of disbursement through repayment of the loan. A Stafford unsubsidized loan is usually granted to most students who apply and there is a borrowing limit. An unsubsidized loan is still a good deal because the interest rate is subsidized by the government so that the rate is still much lower than the prime rate. The current interest rate on a Stafford loan is 6.80 percent. This is the interest rate on Stafford loans issued after July 1, 2006. Before this date the interest rate was a variable interest rate, based on the 91 day Treasury bill. The interest rate is the Treasury bill rate plus 2.5 percentage points while the student is in school and 3.1 percentage points for when the loan is repaid. These rates may change on July 1 of each year but will never exceed 8.25 percent. Like the PLUS loan, the Stafford unsubsidized student loan is for students that do not qualify as low income, but still need some aid.

By 1980, loans comprised 65 percent of all aid. This was due in large part to the jump in the volume of people receiving Stafford loans. The costs of the program have not only increased because it is larger, but changes in interest rates have also made the program more expensive. The Stafford Loan program was enacted in 1965 and since then market interest rates have more than doubled. At the same time, borrower rates have remained about the same. This gap meant

the government would have to pay for higher levels of federal subsidies than originally estimated. As a result, the Stafford Loan program now costs much more to operate at any level of lending.\textsuperscript{25} Today, the Stafford Loan, the Direct Loan, and PLUS Loan programs make up over 55 percent of the total $90 billion in annual federal aid.\textsuperscript{26}

In order to service and process all of the loans under the FFELP the government created Sallie Mae, now also known as SLM Corporation. When Sallie Mae was created in 1972, it held the title of a government-sponsored entity (GSE).\textsuperscript{27} A GSE is an organization set up by the government to direct credit, in this case, the credit for student loans. The status of GSE means that if for some reason Sallie Mae was in danger of defaulting on its debts, the government would have to intervene to stop the default.

Sallie Mae was created to provide a market for student loans originated by banks. Sallie Mae was the first in the secondary market for student loans. The secondary market for loans had already existed since home mortgage debt began to be sold. The market is considered secondary because it is not where the loans originate but where they are bought and sold through a process called securitization. Securitization is “the process whereby relatively illiquid financial assets are packaged together and sold off to individual investors.”\textsuperscript{28} Banks originate the loans in the primary market, bundle them up into large dollar amounts and then sell them to Sallie Mae. SLM Corp. in tum sells the bundled loans to a trust that issues bonds to purchase the loans. In the following quote Sallie Mae explains how it makes money from securitization:

\begin{quote}
27 About us.” Sallie Mae - Private Student Loans, Stafford, PLUS, Student Loan Consolidation. 12 Apr. 2008 <http://www.salliemae.com/about/>
\end{quote}
"We regularly engage in securitization transactions as part of our financing strategy. In a securitization, we sell student loans to a trust that issues bonds backed by the student loans as part of the transaction. We record a gain on the sale of the student loans, which is the difference between the allocated cost basis of the assets sold and the relative fair value of the assets received."-Sallie Mae, Annual report 2006

Securitization makes issuing student loans safer and much more liquid for banks. Loans are safer for banks because they have already received payment on them when they make the sale to Sallie Mae. Interest rate risk for the banks is also greatly reduced. Without the secondary market, the bank that originated the loan would be receiving payment for about ten years. When interest rates rise, the value of loans with fixed interest rates will fall. This is because new loans are being issued at higher rates. Over a period of ten years, the rates can rise quite significantly. To avoid interest rate risk, banks sell their loans. The buyer, Sallie Mae, takes those loans and sells bonds that are collateralized by the student loans. This passes the interest rate risk onto the bond owners. Now the student loans are in the form of bonds or commercial paper (CP). This makes the loans much more liquid for the lender because the bonds can be sold at any time. And the amount someone can pay for the securitized loans is more flexible now that one can purchase a bond or CP. In this process liquidity is increased and interest rate risk decreases for the loan originators. The ultimate lenders are no longer the banks.

Student loan securities are also very safe for the ultimate lenders who buy the bonds and CPs. They are a low risk financial asset for the investor. Sallie Mae securities are given the highest rating by Standard and Poor's as well as Moody's index. The main reason these securities are so safe is because they are secured by the government. In guaranteed loans, the government guarantees lenders a specific minimum yield that they will make on the loan. When the interest rate paid by the borrower is below that yield, the federal government gives lenders subsidy payments, called a Special Allowance Payment or SAP. Also, if the borrower should
default the government will cover almost 100 percent of the losses. The government does this by buying default insurance through state-designated guaranty agencies. The federal government pays guaranty agencies 95 percent of their default claims. The guaranty agencies then provide insurance to lenders for 98 percent of the unpaid principal of defaulted loans. In the worst case scenario, the lender faces a maximum loss of 2 percent of the principle. 29

As the Stafford Loan program expanded, the Pell grant contracted. Although the number of people receiving a Pell grant increased, the value of each grant has decreased. 30 The graph below shows the percent of tuition, fees, room and board, and the maximum Pell grant covered from 1985 to 2006. Unfortunately, the percent of student expenses the Pell grant covers has been just about cut in half. The following is a quote from the Journal of Higher Education on the effect of this,

“All additional dollar allocated to Stafford Loans seems to mean a reduction of a dollar in one of the need-based aid programs. The increasing concentration of federal aid funds in the Stafford Loans skews such subsidies away from the most disadvantaged students and towards middle- and upper-income students. This shift erodes the traditional federal emphasis on equity and equal opportunity that motivated the development of the student aid structure in 1965 and 1972.” 31

The Stafford loan and the Pell Grant are both need based aid. However the Stafford loan is supposed to help middle income students, whereas the Pell Grant is for poorer students with


much greater needs.

During the 1992 reauthorization of the HEA, the William D. Ford Federal Direct Loan Program (FDLP) was added. Under this program the government lent directly to students. In 1994, universities were given an option between the FDLP and the FFELP. For every $100 issued in a Stafford loan, the taxpayers pay about $10.30. For every $100 issued by a federal direct loan the tax payer only pays about 67 cents. This is a dramatic cost difference between the two programs.

The main reason for the difference in subsidy costs between FFELP and FDLP are the differences in the structure of the programs, not the characteristics of the borrowers. There are many long-term costs taken on when lending to students. Some of these costs include: subsidizing borrowers’ interest, canceling repayment of loans due to death, disability, and
default. It has been found that the costs due to these risks are essentially the same in both programs. However, under the FFELP there are larger cash outflows the government must pay in the form of SAP to lenders. These cash outflows are greater than what the government receives in lender fees. In the FDLP, there are large cash inflows from borrower interest payments and no SAP or guaranty fees. The FDLP program eliminates the middle man, saving the tax payers money. The following quote is from Congressman Tom Petri on these two programs. Although some people do not share his view, (and that will be explored later) the following quote is important because it shows the tension between the FFELP and the FDLP programs.

"Currently, there are two main student loan programs that provide essentially the same loans and interest rates to students, but one costs billions more annually than the other. In the first program [FDLP], loans are issued from U.S. Treasury funds, and private companies are contracted to service and collect student loan payments. In the second program [FFELP], the federal government underwrites and subsidizes loans issued by private lenders and banks. These loans bear virtually no risk for private banks, yet have an assured rate of return and are guaranteed against default by the government. The first program is much less expensive, because it secures loan capital at a lower rate, eliminates the middleman (lenders), and cuts out billions in unnecessary subsidies to banks." 

When the federal direct loan program was enacted, Sallie Mae petitioned to end its GSE status. Now that it had competition from the FDLP, Sallie Mae needed to do more than process and service loans. Currently the FDLP is still the Sallie Mae's biggest competition. In their 2006 annual report, Sallie Mae stated that, "Our primary competitor for federally guaranteed student loans is the FDLP, which in its first four years of existence (FFYs 1994-1997) grew market share from four percent in FFY 1994 to a peak of 34 percent in FFY 1997, but has steadily declined since then to a 21 percent market share in FFY 2006 for the total federally sponsored student loan market." In 1997 Sallie Mae began to originate student loans and acquire student-lending

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companies. The company’s internal lending brands originated $6.2 billion in private education
loans for 2005. More than $850 million of the 2005 total came from Tuition Answer, the
company’s new direct-to-consumer private education loan.\textsuperscript{34}

In their 2006 annual report Sallie Mae reported that, “The core of our marketing strategy
is to promote our on-campus brands, which generate student loan originations through our
Preferred Channel. Loans generated through our Preferred Channel are more profitable than
loans acquired through other acquisition channels because we own them earlier in the student
loan’s life and generally incur lower costs to acquire such loans.”

Sallie Mae went public in 1984. They started privatizing their operations in 1997 and
ended all ties to the government in 2004. Sallie Mae entered the now $40 billion student loan
industry as the only provider.\textsuperscript{35} Today there are about 32 banks that originate 90 percent of all
student loans.\textsuperscript{36} Sallie Mae still holds the largest share of that because it started out as a
monopoly. It is six times larger than the next biggest competitor, Citigroup. In 2005 Sallie Mae
held $102.3 billion on FFELP loans. Citigroup held 24.6 billion.\textsuperscript{37}

Recent Legislation in Student Aid

Recently, President Bush made major budget cuts to student aid through the Deficit
Reduction Act of 2005. The act barely passed the senate with a tie breaking vote by Vice
President Cheney. On February 8, 2006 it was signed into law. The Act raised interest rates and
cut funding for student loans. The interest rates on student loans were changed from a variable

\textsuperscript{34} Sallie Mae loan originations grow 19 percent in 2005.” Sallie Mae - Private Student Loans, Stafford, PLUS,
\textsuperscript{35} Gross, Daniel. "Sallie Mae Sallies Forth" A government-sponsored corporation learns to love the free market."
\textsuperscript{36} Burd, Stephen. "The Student-Loan Scam Under a Republican Congress, For-Profit Lenders Pursued Their Own
Interests — Often With The Help of Colleges." Common Dreams | News & Views. 18 Apr. 2008
\textsuperscript{37} "Nelnet Annual Report 2006." Nelnet. 15 Feb. 2008
<files.shareholder.com/downloads/NNI/2554111116x0x85485/c7e74fb4-bfa7-400d-bef9-2e805920f6e4/2006_annual报告r22.pdf>.
interest rate of 4.7 percent, pegged to the 91 day Treasury bill, to a fixed interest rate of 6.8 percent. The interest rate on PLUS loans also increased from a variable 6.1 percent to a fixed rate of 8.5 percent.

Later in 2006, two new grant programs were introduced to reward students that take difficult classes and succeed. The grant programs also serve as an incentive for states to offer a more rigorous high school curriculum. The Academic Competitiveness Grants provide additional aid to first and second year college students who completed a tough high school curriculum and maintained a 3.0 college GPA. The grant awards up to an additional $750 for first-year students and up to an additional $1,300 for second-year students. SMART Grants provide up to an additional $4,000 to third and fourth year college students who have maintained a 3.0 GPA and are majoring in math, science, or critical foreign languages.38

When the Democrats took control of congress in 2007 they immediately tried to bring back funding that was lost with the Deficit Reduction Act. Congress overwhelmingly approved the College Cost Reduction and Access Act. The Act increased student aid for low and middle-income students, providing over $20 billion in new student aid and benefits. Over the next five years, 11.4 billion dollars is to be allocated toward the Pell grant. This will increase the Pell award from $4,310 in 2007 to $5,400 by 2012. The bill also makes it easier to forgive student loan debt for those who commit to public service. The money to pay for this increase in student aid will not come from additional taxes. These benefits are a result of reducing lender subsidies and redirecting the funds to students. The president signed this bill into law on September 27, 2007.39

There are controversies facing the FFELP and the FDLP. One may ask why the FFELP program exists when the same loans can be given in the FDLP program for a much lower cost. According to some financial aid administrators the FFELP uses better technology and has more user friendly repayment methods. Another reason is that banks lobby heavily to keep their share in a very profitable industry. It remains to be seen if the FFELP is as large as it is because it is worth the costs or because of the significant campaign contributions of banks.

In May 2005, Cynthia Thornton, the director of financial aid at Dillard University, testified before the Committee on House Government Reform. Her testimonial was in opposition to the Student Aid Reward Act of 2005 known as the STAR act. In the following quote she explains why she prefers the FFELP program and why the FDLP is flawed. “Since 1998, more than 500 schools have left the Direct Loan program. Private schools like Dillard University are choosing the FFELP because its lenders offer superior technology and a comprehensive loan program that covers the costs beyond the federal loan limits and services that make the student loan process easier for students and aid administrators.” She later argues that although the FDLP is less expensive for the government, that you “get what you pay for” when it comes to loan programs. She also holds that the costs of the subsidies to the banks are redirected to the schools through “value-added services.” These services are things from web-based and campus based training to help printing pamphlets.

The Star Act calls on the Secretary of Education to determine which program is more efficient and then reward schools with additional scholarship funds for utilizing the more efficient program. Although it is not stated explicitly, it is assumed that the FDLP will be named the more efficient program. Therefore the intention of the act is to encourage schools to shift to the FDLP program by offering scholarship funds. To this point, Thornton argues that equity is
lost because the increase in grant money could not be offered to all students, just to students whose school participates in the program.

If Thornton felt that equity is reduced with the FDLP program, she would be appalled by the practices of some lenders under the FFELP program. In order to help students pay for college, many schools have a preferred lender list. This is a list of banks that the school trusts to be the best for students. For example, on its website, the University of Redlands lists five types of private loans that include three lenders: Sallie Mae, Wachovia, and CitiBank. Some colleges only have one lender listed. It is a coveted spot by banks because many students are unaware they can use other lenders that are not on the list. About 90 percent of students choose banks that their school recommends. This gives the bank a virtual monopoly on all loans coming from a particular school. According to the Education Department, at about 300 schools, one lender controls 99 percent of the loan volume. Many lenders even use deceptive methods like using a school’s colors, logo, and mascot on their materials to make it look like there is some formal relationship between that bank and the school. The result is that many students are not getting the best rates because they do not know about any other options. The Redlands website does make it clear that the school accepts other private lenders. On the Redlands website it states the following, “Listed below are several Alternative Loan options you may wish to consider. If you would like to select an Alternative Loan from a lender not listed below please feel free to contact

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40 "University of Redlands - Payment Options & Recommended Alternative Loans." University of Redlands. 12 Apr. 2008 <http://www.redlands.edu/x5992.xml#x6043>. The author is a current student at the University of Redlands.
the lender directly. Some students do not have access to clear and unbiased information. As for the "value-added services" that Thornton mentioned, it turns out some banks have taken this notion a little too far. They have added such services as: taking college employees out to expensive entertainment events, dinners, and vacations. They have also given monetary incentives to schools such as giving the school a cut of each loan they refer to a particular bank. These conflicts of interest rob students of a fair view of their options.

In order to stop these practices, the house passed the Student Loan Sunshine Act. The act banned all gifts and revenue sharing between lenders and schools. It also ensures that students have access to all lenders, not just the "preferred" ones. One of the most egregious practices the law stops is the staffing of school's financial aid officers by the lender bank. The act also protects schools and students from overly aggressive marketing tactics. The Student Loan Sunshine Act overwhelmingly passed the House on May 7, 2007. The bill still needs to be approved by the senate.

New York Attorney General Andrew Cuomo has recently investigated and settled with many universities involved in biased lending. This year, Cuomo's office has signed settlements with many universities relating to student loans. These settlements require the school to reimburse students the money the colleges were paid by the lenders. The settlements also hold the schools to agreeing to a code of conduct that puts restrictions on the relationship between schools and lenders. Cuomo and attorney generals for Missouri and Illinois settled with Washington University, DeVry University, and Career Education. DeVry agreed to reimburse

42 http://www.redlands.edu/s5992.xml#x6043
46 See appendix for the entire code of conduct.
$88,112 received from Citibank in a revenue-sharing deal. Career Education agreed to contribute $21,200 to the educational fund. Other schools Cuomo has settled with include Salve Regina, Pace University, and New York Institute of Technology. Other schools that are reimbursing students include prestigious Universities like New York University, which is reimbursing students $1,394,563.75 for loans issued over a five-year period. The University of Pennsylvania is reimbursing students $1,617,580 for loans issued over a two year period.47

The investigation also found that financial aid officials at Columbia University, University of Texas, and University of Southern California, all owned stock in Student Loan Xpress, a company on their schools’ preferred lender list. On April 6, 2007, a senior Education Department official was suspended after it was found that he owned stock in Student Loan Xpress. Three days later, Johns Hopkins placed its director of student financial services on paid leave after finding out that she received about $65,000 in consulting fees from Student Loan Xpress, which was also on the university’s preferred list.

Cuomo also settled with Sallie Mae, in which Sallie Mae agreed to stop a myriad of shady practices including: providing call centers and staffing for college financial aid offices, paying aid officers for appearing on advisory boards, and paying for trips and travel for aid officers. Sallie Mae also agreed to contribute $2 million to the student-loan educational fund. On April 19, 2007, Cuomo announced legal action against Drexel University, over its revenue-sharing deals with Education Finance Partners (EFP). Since 2005, Drexel University has sent off $16 million in loan volume to EFP.48

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The student loan industry has evolved significantly over the years. Some changes are for the better such as the new grant programs and federal loan programs. As surely as the costs of college increase, so will the volume of student loans. Some lenders have capitalized on this by using underhanded lending practices that have led to a distrust of schools and lenders. The victims of such dealing are students and taxpayers. Like any other industry, the student loan industry has developed the corruption associated with any other cut throat marketplace. “The student loan industry is a very complex and confusing marketplace, and as students try to navigate its murky waters to get the best loan at the best terms, the last thing they need are sharks baiting them with glossy promotions and deceptive offers.” It is clear that changes are being made to clean up this industry. Legislation has been proposed and is on its way to becoming law. Attorneys General across the nation are investigating colleges. Yet, there are many changes that still need to be made. Grants need to increase so fewer people need to take out private loans. And when private loans are taken out, it should be done in a fair and open market.

49 General Cuomo
Section III

The changing state of student aid

This section of the paper addresses whether or not higher education has become less affordable since the Higher Education Act was created. There are many websites, think tanks, and books published that vehemently argue that students and families are being forced to take out burdensome amounts of loans in order to cover college costs. Some also argue that students are acquiring so much debt that it prevents them from entering low paying fields like teaching, from getting married, and buying a house. The following quote by Tamara Draut, author of *Strapped: Why America’s 20-somethings and 30-somethings can’t get ahead*, encompasses this view.

"The debt-for-diploma system is a pernicious beast. It stunts young adults' economic progress as they try to start their lives, draining precious dollars out of their paychecks for more than a decade. The evils of the debt-for-diploma system aren’t restricted to those who take out student loans. Anytime a bright but lower-income student settles for a two-year institution or forgoes college altogether, the debt-for-diploma system has claimed another victim."

Is there really an evil debt-for-diploma system that swallows up unsuspecting young bright minds and prevents them from achieving stability after college? The following section takes a historical approach to examining how our higher education system has changed and critically analyzes the data to find truth in what has become a heated topic.

The 1970's through the 1980's

In the 1970's most aid disbursed by government was in the form of grants. In the mid 1970's, about 75 percent of federal student aid was in the form of grants and only 25 percent in the form of loans.\(^5^0\) In 1970, tuition at public four year universities averaged $480 dollars and private tuition was $1,980. In 1970 the median family income was $9,867. Public tuition was

about 4.9 percent of family income and private tuition was about 20 percent.\textsuperscript{51} College students in the 1970s were getting the best deal on their college education. Between 1970 and 1980 average public tuition grew more slowly than inflation; an event that has yet to reoccur.

When determining the real affordability of college, simply looking at price will not show the real burden on students because it does not include all of the financial aid that students receive. Also, an increase in the volume of grant aid will not necessarily engender affordable higher education. In order to see the real amount students pay for college, one must look at the net price. This is the actual price students pay after all grants and financial aid have been subtracted from the total. The following chart depicts how average real tuition and fees and the net price of college have changed over time since 1970-1971 levels. The percentage change

shows if tuition has become more or less expensive since the starting point of 1970.

The graph taken from a study done by the Congressional Budget Office indicates that net tuition and fees actually dropped the lowest point in the mid 1970s and then started to increase after that point. There was another decrease in 1980 but only including loans as part of student aid. If one only looked at the net price including all loans, one would conclude that higher education had become more affordable. However, considering loans must be paid back, it is a false view of the real affordability of college. The net price excluding all loans is the real indicator of how student aid changed throughout that decade. By the end of 1986 real net tuition and fees had risen about 31 percent from their 1970 levels.52 The following quote is the conclusion of the Congressional Budget Office study. “Between 1980 and 1985, real tuition at

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The rising price of college was very worrisome for middle-income families. “In 1970s and 1980s congress responded to these concerns by raising the maximum amounts that students could receive in the subsidized loan programs and, most important, by increasing the number of students from middle income families who were eligible to receive need-based Stafford loans.”

The late 1980’s moving into the 1990’s were not a good time for students with debt. Between 1985 and 1991, the average student’s cumulative indebtedness grew 153 percent; increasing from $6,488 in 1985 to $16,417 in 1991. As a proportion of family income, cumulative debt rose from 6.23 percent to 9.52 percent, while average annual gross income grew by only 5.5 percent. The original intention of the higher education act was to increase equality by providing aid to the neediest individuals. Fifteen years after the HEA was signed, the legislation was moving into a much different direction.

The 1990s

The trends that began in 1980 continued throughout the 1990’s. As mentioned earlier, the grant to loan ratio of federal aid in the mid 1970’s was about 75 percent grants and 25 percent loans. In the mid 1990’s that ratio had switched to about 75 percent loans and 25 percent grants. The imbalance was increased by the decline in the purchasing power of the Pell Grant. In the mid 1970s the Pell Grant paid for about 46 percent of the average cost of attendance at a four-year college.

public college. In the mid 1980s it only covered about 30 percent. Then from the 1980’s to the 1990’s the Pell Grant lost 40 percent of its value.

The change in aid from dominantly grants to dominantly loans occurred because of changes made during the 1992 reauthorization of the Higher Education Act. Under the new legislation, all students were able to receive federal loans regardless of family income.

"HEA ’65 and ‘72’s legacy of access though grants to needy students was compromised by flat allocations and rising tuition. The pressures for middle class relief, joined with public support for the ideas of personal responsibility and institutional accountability, received a full hearing in a presidential election year." The overall effect of changes that took place in the HEA since 1980 was a system in which student aid was no longer targeted toward the students most in need. The chart below indicates

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how the allocation of government aid has shifted away from grants to other types of aid.\textsuperscript{57}

Borrowing heavily increased once the government made federal loans available to everyone. During the period of 1992-93 to 2003-04, annual student loan volume more than doubled in real terms; increasing from $19.8 billion to $50.5 billion. The number of loans made annually also more than doubled, from 4.8 million to 10.8 million.\textsuperscript{58} The chart below indicates that one of the main groups that saw an increase in borrowing was actually upper income students.

Table 3
Cumulative Amount of Federal Student Loans Borrowed by Bachelor's Degree Recipients, by Student Dependency Status and Family Income: 1992-93 to 2003-04, in Constant 2003-04 Dollars

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>Median</td>
<td>%</td>
<td>Median</td>
</tr>
<tr>
<td></td>
<td>Borrowed</td>
<td>Amount</td>
<td>Borrowed</td>
<td>Amount</td>
</tr>
<tr>
<td>All BA Recipients</td>
<td>36.8</td>
<td>10,088</td>
<td>50.1</td>
<td>13,327</td>
</tr>
<tr>
<td>Dependent Students</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than $30,000</td>
<td>62.0</td>
<td>10,968</td>
<td>69.8</td>
<td>15,614</td>
</tr>
<tr>
<td>$30,000 to $49,999</td>
<td>44.7</td>
<td>9,703</td>
<td>63.9</td>
<td>17,807</td>
</tr>
<tr>
<td>$50,000 to $69,999</td>
<td>23.1</td>
<td>7,819</td>
<td>36.8</td>
<td>14,368</td>
</tr>
<tr>
<td>$70,000 to $99,999</td>
<td>21.4</td>
<td>6,650</td>
<td>25.3</td>
<td>9,636</td>
</tr>
<tr>
<td>$100,000 or more</td>
<td>6.5</td>
<td>4,896</td>
<td>13.3</td>
<td>12,768</td>
</tr>
<tr>
<td>Independent Students</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than $20,000</td>
<td>51.7</td>
<td>10,592</td>
<td>70.8</td>
<td>13,034</td>
</tr>
<tr>
<td>$20,000 to $49,999</td>
<td>38.0</td>
<td>9,793</td>
<td>53.0</td>
<td>12,343</td>
</tr>
<tr>
<td>$50,000 or more</td>
<td>24.6</td>
<td>6,520</td>
<td>30.9</td>
<td>12,647</td>
</tr>
</tbody>
</table>


In 2003-2004, 48.4 percent of dependant BA recipients with family incomes of $100,000 or more, borrowed to finance their education. Most of these students would not have been eligible to borrow before the 1992 changes. In 1992 only 6.5 percent of students in that income


category borrowed. At about the same rate throughout the time period, dependant students with family incomes of less than $30,000 acquire federal student loans. In 1992-1993, 62 percent of students with family incomes less than $30,000 borrowed with the median amount of $10,968. In 2003-2004, that number had risen to 68.9 percent median amount borrowed of $14,652.

As mentioned earlier in this paper, even Stafford unsubsidized still carry better interest rates than private loans. This brings up the question of whether or not it is fair to have government aid money go to subsidize interest rates on loans for families earning more than $100,000 when that money could be going toward grants for poorer families. The following quote from Trends in Student aid 2007 by the College Board confirms this shift in how students receive aid. “In the 1970s and 1980s, most aid programs were designed to increase access to college for students who would otherwise be unable to afford to enroll. In recent years, student aid programs have been focused increasingly on affecting students’ choice of institutions and on reducing the financial strain on middle-income families.”

2006-2007

Some statistics mentioned earlier have improved recently. In 2006-07 federal loans constituted 63 percent of federal aid, down from about 75 percent. In the 10 year period from 1996-97 to 2006-07, the number of Pell Grant recipients increased by 41 percent, from 3.7 million to 5.2 million. The average Pell Grant received per person was $2,494 in 2006-2007. This was 23 percent higher in inflation-adjusted dollars than it had been 10 years ago. However it was still 5.3 percent lower than at its 2001-2002 level. Total grant dollars to undergraduates

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increased by 7 percent in inflation-adjusted dollars between 2005-06 and 2006-07. Grant aid per student increased by 4 percent over the same period.

Usually adjusting for inflation shows the real changes in the value of something. Despite these real increases in the Pell Grant, its coverage of college cost continues to decline. This is because college price has consistently risen about 3 percent more than inflation. The percentage of tuition and fees and room and board at the average public four-year college covered by the maximum Pell Grant declined from 35 percent in 1996-97 and 42 percent in 2001-02 to 32 percent in 2006-07. The amount covered in 1986-87 was 52 percent. The chart below shows how tuition inflation compares to general inflation. \(^{61}\) It is true that real amount students received from the Pell grant increased in the past 10 years. However, adjusted for the inflation of college price, the Pell grant has become less effective. \(^{62}\)


Students also receive non-federal aid. In 2005-06 state and local fund appropriations did increase. Institutions provide the largest source of grant aid. Institutional grants represent 41 percent of all grant aid received by students, while federal grants are only 31 percent of the total. The increase in grant dollars between 1996-97 and 2006-07 covered an average of about a third of the increase in private college tuition and fees and half of the increase in average public four-year college tuition and fees. The increase in total aid, including both grant aid from all sources and federal loans, covered about two-thirds of the increase in tuition and fees at private four-year colleges and almost all of the increase in tuition and fees (but none of the additional increase in costs of attendance) at public four-year institutions. Given all of this information, the conclusion of College Board’s 2007 Trends in Student Aid was that access and opportunity issues remain a barrier for low income students.63

The long run trends we have seen throughout the past 40 years indicate that net college costs have continued to rise. The increases in grant aid have been able to keep pace with regular inflation but not tuition inflation. To compensate for this, federal aid has shifted to dominantly disbursing loans instead of grants. This has been helpful for middle and upper income families but is not as useful for low income families. This is what led the College Board to conclude that there still remains a barrier for low income students to afford higher education.

Although there are accessibility issues for the poor, the volume of people going to college and earning degrees has increased. Between 1976-77 and 2004-05, enrollments in postsecondary degree-granting institutions increased by 57 percent and the annual number of bachelor’s degrees earned increased from 918,000 in 1976-77 to 1,439,000 in 2004-05.64

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this information one would conclude that we are better off now than we were in the mid 1970s because many more people are going to college and earning degrees. People are aware that attaining a degree has become a necessity and more people are willing to continue to take on larger amounts of debt to achieve that goal. The next section analyzes how increasing amounts of debt affect students after graduation.

Debt Burden after Graduation

The National Center for Education Statistics conducted a study comparing the debt burden of 1992-93 graduates and 1999-2000 graduates. They looked at the average monthly payment of their debt a year after graduation to their monthly salary. It was found that on average debt burden did not increase. Debt burden was defined as monthly loan income payment as a percentage of monthly salary.

Table A. Among 1992-93 and 1999-2000 bachelor's degree recipients who borrowed for undergraduate education, average amount borrowed (in 1999 constant dollars) and among those repaying their loans a year later, average monthly salary and loan payment (in 2001 dollars) and median debt burden, by type of degree-granting institution: 1994 and 2001

<table>
<thead>
<tr>
<th>Type of degree-granting institution</th>
<th>All graduates</th>
<th>Borrowers</th>
<th>Borrowers in repayment</th>
<th>Median debt burden</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. total (excluding Puerto Rico)</td>
<td>49.3</td>
<td>65.5</td>
<td>$12,100</td>
<td>$19,400</td>
</tr>
<tr>
<td>Total (50 states, D.C., and Puerto Rico)</td>
<td>49.3</td>
<td>65.4</td>
<td>$12,100</td>
<td>$19,300</td>
</tr>
<tr>
<td>Public 4-year non-doctoral</td>
<td>48.0</td>
<td>63.1</td>
<td>9,800</td>
<td>15,000</td>
</tr>
<tr>
<td>Public 4-year doctoral</td>
<td>45.5</td>
<td>63.6</td>
<td>10,600</td>
<td>17,500</td>
</tr>
<tr>
<td>Private not-for-profit 4-year non-doctoral</td>
<td>57.5</td>
<td>71.5</td>
<td>14,100</td>
<td>20,900</td>
</tr>
<tr>
<td>Private not-for-profit doctoral</td>
<td>49.5</td>
<td>65.4</td>
<td>16,800</td>
<td>28,000</td>
</tr>
</tbody>
</table>
"The major finding of the analysis was that although both the percentage of graduates who had borrowed for their undergraduate education and the average total amount borrowed (adjusting for inflation) increased, the median debt [service] burden a year after graduating was about the same for both cohorts."\textsuperscript{65} There are some caveats to this statement. First, the study did not include parent loans. Therefore, it is only measuring the burden on the student, not the burden placed on the entire family. Also the debt to income ratio (average amount borrowed to average annual salary) increased from 43 percent to 57 percent. Low interest rates have kept monthly payments low.\textsuperscript{66} However there still larger amount that must be repaid in the later cohort.


Section IV

Econometric Analysis

Student loans have risen significantly in the last decade. Tuition hikes, grants, and family income all impact the amount of loans that students must acquire. When tuition and fees increase, can colleges predict the impact that will have on the amount of student loans? Or, when the government decides to allot more money to grant programs, how exactly will that affect loans? If families earn more or less in real dollars, how will that change the loan dependency of their children? Knowing the exact relationship of these variables is important because it allows us to measure the impact of legislation or price increases before they happen. If congress wants to cut funding to the Pell grant, this model could show in a dollar amount how that would increase dependency on loans. This model would also be very important to loan companies that want measure how their business will grow or shrink if tuition, grants, or family income change in some way.

A central question of this thesis is: what is the relationship between federal student loans and grants in terms of the affordability of college? An econometric model can capture more precisely how these variables relate to each other. Additionally, an econometric model could potentially show whether students are being forced to take out burdensome amounts of loans. An econometric model could show how tuition hikes and funding cutbacks lead to greater borrowing. Even though most students are not taking out burdensome amounts of debt, one could estimate a situation where they would. Capturing these relationships might allow prediction of future borrowing as a function of college price, grants, the high school to college graduate wage ratio, and family income.
The explanatory variables for this model are college price, grants, the grant to college price ratio, the wage ratio of high school and college graduates, and family income. The model seeks to explain the increase in student borrowing. The data used came from 39 different schools from the years 1999-2000 to 2004-2005. The information came from the Integrated Postsecondary Education Data System (IPEDS). This is the system almost all schools report their information to (including the University of Redlands).

**College Price:** Tuition is the amount of money charged to students for instructional services. Tuition may be charged per term, per course, or per credit. Required fees are fixed sum charged to students for items not covered by tuition and required of such a large proportion of all students that the student who does not pay the charge is an exception.

**Grants:** Grants are defined as the average amount of federal grants (grants/educational assistance funds) received by full-time, first-time degree/certificate-seeking undergraduate students. Grants are provided by federal agencies such as the U.S. Department of Education, including Title IV Pell Grants and Supplemental Educational Opportunity Grants (SEOG). Also includes need-based and merit-based educational assistance funds and training vouchers.

**Grants/college price:** This is the ratio of grants to college price. For example, if grants are $2,439 and the college price is $12,717 then the grant to college price ratio is 0.166.

**Median family income:** Income of students’ families was not available on IPEDS so median family income was used from the US census bureau. Certain years of expected family contribution can be found from the NCES. However, the years for which that information is given were not available for the years this model covers.

**High school to college wage ratio:** The data used for this ratio is from census data. The ratio is comprised of full time year round workers of all races and genders ages 45-55. This age
bracket was used because at an earlier age the monetary benefits of a college education may not be fully realized.

**Loans:** Loans are defined as the average amount of student loans received by full-time, first-time degree/certificate-seeking undergraduate students. Loans to students are any monies that must be repaid to the lending institution for which the student is the designated borrower. Loans include all Title IV subsidized and unsubsidized loans and all institutionally- and privately-sponsored loans. Does not include PLUS and other loans made directly to parents.

The expected result of the model is that college price will have a positive sign and that grants and income will have a negative sign. This means that the greater the college price, the greater the loans. And the more grants and family income to draw on, the less need there would be for loans.

<table>
<thead>
<tr>
<th>Model One</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Parameter</strong></td>
</tr>
<tr>
<td>B₁</td>
</tr>
<tr>
<td>B₂</td>
</tr>
<tr>
<td>B₃</td>
</tr>
<tr>
<td>B₄</td>
</tr>
<tr>
<td>B₅</td>
</tr>
<tr>
<td>Y₁</td>
</tr>
</tbody>
</table>
Econometric model

The following is the first empirical model used.

\[ Y_t = a + B_1 X_1 + B_2 X_2 + B_3 X_3 + B_4 X_4 + B_5 X_5 + \varepsilon \]

In words, loans \( (Y_t) \) are a function of a constant plus grants, college price, median family income, the income ratio of high school and college graduates, a time trend, and an error term. The error term captures the non-systematic information, things that are not explained by the variables. Two common estimators of panel data are the fixed effects and random effects model. A fixed effects model was used in this case because the panel is comprised of observations on a fixed and relatively small scale. The colleges used for the panel data were generated as a comparison list to the University of Redlands from IPEDS. If the colleges were randomly selected from the entire nation a random effects model would be used.

\[ \log Y_t = \log a + B_1 \log X_1 + B_2 \log X_2 + B_3 \log X_3 + B_4 \log X_4 + B_5 \log X_5 + \log \varepsilon \]

The logs of the variables were used instead of the real values to show the percent change effect on loans. The model also includes a time trend since the data was gathered over six years.

### Output using all variables

Fixed-effects estimates using 234 observations
Included 39 cross-sectional units
Time-series length = 6
Dependent variable: Log Loans

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Grants</td>
<td>0.440</td>
<td>0.096</td>
<td>4.595</td>
<td>&lt;0.00001 ***</td>
</tr>
<tr>
<td>Log CPrice</td>
<td>0.453</td>
<td>0.524</td>
<td>0.866</td>
<td>0.388</td>
</tr>
<tr>
<td>Log MFI</td>
<td>-1.114</td>
<td>3.269</td>
<td>-0.341</td>
<td>0.734</td>
</tr>
<tr>
<td>Log IR</td>
<td>0.754</td>
<td>1.517</td>
<td>0.497</td>
<td>0.620</td>
</tr>
<tr>
<td>Log Time</td>
<td>-0.019</td>
<td>0.167</td>
<td>-0.114</td>
<td>0.909</td>
</tr>
</tbody>
</table>

Mean of dependent variable (in thousands) = 8.340
Standard deviation of dep. var. = 0.372
Sum of squared residuals = 15.344
Standard error of residuals = 0.284
The title of the model indicates that there are 39 cross-sectional units over 6 time periods. This means that the variables were measured from 36 schools over 6 years (1999-2000 to 2004-2005). The F statistic to test if the schools have a common intercept is 4.88 so we can reject the null hypothesis of a common intercept. Rejection of the null is good because it would be odd if different schools had the same intercept. This would imply that there was no variation in other variables from school to school. Because a log-log model was used, the coefficients of the model can be interpreted as elasticities. The elasticity measures how much one variable changes when there is a one percent change in another. In this model only grant aid is significant.

The coefficient of grants is 0.44. This means that a one percent increase in grants increases loans by 0.44 percent. This positive coefficient is not what was expected. The original hypothesis was that the coefficient for grant aid would be negative because more grants one receives the less need for loans. The coefficient may be positive because when a person demonstrates needs for grants they do not have nearly enough funds to pay for college and must take out more loans than a wealthier individual who does not qualify for grants. In other words, a student from a wealthy family that does not qualify for grants is also wealthy enough not to take out loans. Whereas a lower income student who does qualify for grants is more likely to take out loans as well.
For each of the other variables, the standard error is greater than the coefficient. This indicates that the deviation between the actual values of the coefficients and the values that the model predicts is very large. It basically means that the model cannot accurately predict what the other variables will be. The $R^2$ of the model is 0.52. This means that about 52 percent of the variation of borrowing about its mean is explained by the model. Overall, this model is not very useful because almost all the coefficients are not significant.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>$B_1$ MFI</td>
<td>Median family income information is from census data. It is not differentiated by school. It is median family income of all households in the United States.</td>
</tr>
<tr>
<td>$B_2$ G/CPrice</td>
<td>This is the ratio of grants to college price. For example, if grants are $2,439 and the college price is $12,717 then the grant to college price ratio is 0.166.</td>
</tr>
<tr>
<td>$B_3$ Time</td>
<td>The time parameter is the six years that were used (1999-2004)</td>
</tr>
<tr>
<td>$Y_t$ Loans</td>
<td>Loans are defined as the average amount of student loans received by full-time, first-time degree/certificate-seeking undergraduate students. This information is aggregated by school. It is the average of all students at a particular school.</td>
</tr>
</tbody>
</table>

### Output using median family income and the grant/college price ratio

Fixed-effects estimates using 234 observations
Included 39 cross-sectional units
Time-series length = 6
Dependent variable: Log Loans

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log MFI</td>
<td>-4.067</td>
<td>2.521</td>
<td>-1.613</td>
<td>0.108</td>
</tr>
<tr>
<td>Log G/CPrice</td>
<td>0.419</td>
<td>0.093</td>
<td>4.493</td>
<td>0.00001 ***</td>
</tr>
<tr>
<td>Time</td>
<td>0.104</td>
<td>0.046</td>
<td>2.251</td>
<td>0.026   **</td>
</tr>
</tbody>
</table>

Mean of dependent variable = 8.340
Standard deviation of dep. var. = 0.372
Sum of squared residuals = 15.217
Standard error of residuals = 0.282
Unadjusted $R^2 = 0.529$
Adjusted $R^2 = 0.428$
F-statistic (41, 192) = 5.254 (p-value < 0.00001)
Test for differing group intercepts -
Null hypothesis: The groups have a common intercept
Test statistic: $F(38, 192) = 5.307$
with p-value $P(F(38, 192) > 5.307) = 3.321e-015$

In this model only median family income and the grant/college price ratio was used. The negative relationship between family income and loans is as expected. It is logical that the higher the family income, the more able that family would be to finance college without borrowing. The coefficient of family income is -4.067 this means that a one percent increase in family income leads to a 4.067 percent decrease in loans. The positive relationship of the grants/college price ratio to loans was unexpected. The grants/college price coefficient is 0.419. This means that a one percent change in grants/college price increase loans by 0.419 percent. The original hypothesis was that the more grants cover tuition the less need there would be for loans and therefore the variable should be negative. An explanation for why this coefficient is positive could lie in the types of colleges surveyed. The colleges used in the data are all private schools and tend to be more expensive than public schools. It is likely that in this situation when students qualify for loans they take them despite the amount of grants they receive. It also may be that the changes in the ratio of grants to college price is too small during the observed period for a negative coefficient to emerge. It could be that if more years were measured a dramatic negative effect could appear between the grant to tuition ratio and loans.

What do these econometric results say about the factors that influence student debt? The family income coefficient is consistent with the earlier finding that students from wealthier families borrow less to pay for college than students from poorer families. The sign on the
variable for the grant/college price ratio was unexpectedly positive, though this could be due to
the fact that people are borrowing the full amount loan aid no matter what.

There are definite limitations to this study. The main problem was that the data was
aggregated by school. For example, rather than looking at income, grants, college price, and
loans of an individual, the averages of each school were used. Additionally, the median income
and wage ratio data was taken from the census so that did not even vary by school. It is difficult
to explain individual behavior such as the decision to borrow when looking at aggregated data.
However, collecting personal information required access to information that is typically kept
private by institutions. Another setback to the study was the range of years that it covered. Data
for the variables were only available for six years. If more years were available, trends in
borrowing may be more apparent. For example, the income ratio of college educated earners to
high school earners which was insignificant in this model could potentially be significant when
measured over more years. Changes that are too subtle to be seen over six years could be
significant over thirty years.

Some interesting areas of further research in this topic would be to study a larger sample
of colleges or to run the model with public colleges. A study using individual survey results
rather than college aggregates would also be useful in coming closer to understanding how the
explanatory variables affect individual borrowing decisions. The previous research on this topic
covers variables affecting default and variables affecting college attendance, but a viable model
measuring exactly how certain variables affect the amount borrowed remains to be seen. For
these reasons the model presented here opens the door to further research in this field.
Section V

Conclusion

More people are going to college than ever before which simply means there is less available aid per person. Around the time the HEA was signed 9.2 percent of the U.S. population age 25 or older had at least a bachelor’s degree. The 2000 census reported that figure to be 24.4 percent.\(^{67}\) The government has tried to keep up with the increase in college attendance by increasing funding to the Pell grant as well as creating new grant programs like the SMART grant. The Pell grant program has also grown from 3.4 million in 1976–77 to 8.7 million in 2000–01. Although more people are receiving aid than ever before, the amount they are receiving covers less of the cost of college. In 1979–80 the maximum grant covered 77 percent of the average price of tuition, fees, and on-campus room and board at a public four-year institution. In 2003 the maximum grant covered 41 percent. The government has also shifted away Title IV aid from Grant programs to loan programs\(^{68}\)

College prices have increased dramatically since the 1970’s making the share of aid students receive cover a smaller percentage of college costs. In 1976-77, the average cost of attending a private college was $12,837 adjusted for inflation. In 2005, the average cost of attending a public college is $11,354. Yesterday’s private college is about as costly as today’s state college. In 2001 half a million high school graduates who were college-ready downgraded to community college or did not go at all because they could not afford a four year school.\(^{69}\)


More people are able to go to college today than thirty years ago though there are still people that cannot afford it.

A 2001 study entitled *Bigger Loans Bigger Problems: a report on the Sticker Shock of Student Loans* found that students significantly underestimate the cost of their loans. They study surveyed how students understood their loans. When asked about the total amount owed including interest, about 78 percent of respondents underestimated the total cost of their loans by $4,846. The study also found that the larger the debt the lower the awareness of the total cost. Students also tended to overestimate their future income and expected to be able to contribute more of their future income to loan repayment. The loan industry recommends that students devote no more than 8 percent of their monthly income to loan repayment. Survey respondents expected to contribute an average of 10.7 percent. Students also did not have an understanding of how much interest will cost them. The following is a quote from the study on this point.

“Most students underestimate the impact of interest on their student loans. Even if students understand the total amount they have borrowed, often they do not realize the total cost of that loan. Students who do not have a concept of the accumulation of interest may be shocked when they discover the substantial amount by which interest increases the principle loan”

Lastly, the study found that low-income students are less likely than other students to understand the impact of interest on the total cost of their loans.⁷⁰

There were several questions raised at the beginning of this thesis. The first was to determine if college has become more affordable. The answer to that question is no. The price of college has consistently risen about three percent above inflation. The more complex question is whether or not students are forced to take out burdensome amounts of loans. Although students are borrowing more than ever before, studies have found that due to lower interest rates, and

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higher incomes after graduation, students are unlikely to be burdened excessively by their student loans. The people that will really have a difficult time after college are those that take out loans and then drop out. They are stuck with high debt and low earning potential. The best time to go to college was in the 1970s. At that time, grants covered most of the expenses. Today, even middle and upper income families are choosing to borrow to pay for college. This fact has dramatically increased the volume of loans.

Increased borrowing of middle and upper income families is not necessarily worrisome. These students’ families have more financial assets and will be better equipped to help their children after graduation. What is disconcerting is the shift in aid from the poor to the middle class. The poor are the least able to afford college. They take out more debt and their families may not be able to support them if need be after graduation. The average income of families in the lowest income quintile has actually declined slightly in real terms since the 1970s. This fact coupled with inflated college prices means that paying for college now requires a larger share of low-income families’ annual income than it did when the Pell Grant program began.71 Low income students are taking out more loans, are less aware of what they cost, and have less resources to repay them after graduation.

I would make the following recommendations to improve student aid. First, the government should switch to completely disbursing loan aid directly to students through the FDLP. The government is paying banks to do a service it can do itself. The money that is saved can then be funneled directly to the students. Second, the government needs to significantly increase funding for the Pell grant. How we allocate our resources as a nation is an indication of what we deem to be important. Bulking up loan programs for the middle and upper class is

unethical if it means taking the money from the people least able to help themselves. If President Johnson’s vision of higher education is to come true, this shift must take place. Third, it is important for students to understand the true costs of the loans that they are taking out. The fact that most students do not know what they actually owe is not a good sign of their financial intelligence. If students do not understand how much interest will add to their loans, they may also not grasp how much they could be paying in interest on their credit cards. Borrowing money to pay for college is a great investment. Understanding the costs of that investment will allow students to make smart financial decisions to keep their debt under control.

There are a few areas in which there should be more research. More research should be done on private loan companies. The amounts of money they offer to lend are enormous. Students that subscribe to these types of loans should be monitored to see if they are overburdened by them. Also, there should be more studies that compare college graduates of different decades. The only one found was conducted by the National Center for Education Statistics of graduates in 1993 to graduates in 2000. These studies are important because they show exactly how things have changed from one decade to the next.

A college degree is very important to building wealth and success. However, leaving college with an enormous amount of debt is an ominous way to enter the real world. By being aware of what they will most likely earn after graduation, and the true costs of their loans, students will be able to make choices that steer them away from taking out too much debt and lead to greater financial security.
## Appendix

### Time Line of Student Loan Legislation

<table>
<thead>
<tr>
<th>Date</th>
<th>Legislation</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>1944</td>
<td>Serviceman’s Readjustment Act (GI Bill)</td>
<td>To help the transition from soldier to worker by giving veterans the ability to pursue training and education. This bill helped 2.3 million veterans attend colleges and universities.</td>
</tr>
<tr>
<td>1958</td>
<td>National Defense Education Act (NDEA) Now known as the Perkins Loan</td>
<td>The purpose of the NDEA was to give aid in the form of student loans to people that wanted to study math, science, or modern languages. There is another subsidized loan program, called the Federal Perkins Loan program, in which the federal government pays the interest as long as the student is enrolled at least half-time. Interest is fixed at 5 percent and repayment does not begin until nine months after the student ceases to be enrolled at least half-time. The student has a maximum of ten years to repay the Perkins Loan, excluding deferment and forbearance periods.</td>
</tr>
<tr>
<td>1965</td>
<td>Higher Education Act (HEA)</td>
<td>The purpose of the HEA was to make it possible for any American to go to college regardless of financial status. Under title IV are the Guaranteed Student Loan program (GSL) known as the Stafford Loan Program and the Educational Opportunity Grant (EOG) known as the Pell grant.</td>
</tr>
<tr>
<td>1977</td>
<td>Cap removal on the guaranteed student loan</td>
<td>The cap was removed from the Stafford loan making a Stafford unsubsidized loan available to almost everyone.</td>
</tr>
<tr>
<td>1980</td>
<td>Parent Loan for Undergraduates (PLUS Loan)</td>
<td>This program gives low interest loans to parents to pay for their child’s education.</td>
</tr>
<tr>
<td>1980</td>
<td>Consolidation is made available</td>
<td>The government makes it possible to consolidate their loans into a single payment and extend their pay period.</td>
</tr>
<tr>
<td>1988</td>
<td>Guaranteed loans-Stafford loans</td>
<td>Guaranteed loans were renamed Stafford loans after Senator Robert Stafford of Vermont. The interest rate on Stafford loans first disbursed beginning July 1, 2006 is fixed at 6.8%. The interest rate on</td>
</tr>
<tr>
<td>Year</td>
<td>Event/Program</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>---------------</td>
<td>-------------</td>
</tr>
<tr>
<td>1989</td>
<td>Financial aid Counseling</td>
<td>Student loan borrowers are required to receive financial aid counseling before borrowing can occur.</td>
</tr>
<tr>
<td>1991</td>
<td>Schools with high default rates suffer</td>
<td>The government no longer allowed schools with high default rates to participate in the guaranteed student loan program.</td>
</tr>
<tr>
<td>1992</td>
<td>Guaranteed loans-Federal Family Educational Loan Program (FFELP)</td>
<td>The entire program of guaranteed loans, including the Stafford loan and the PLUS loan, was renamed the Federal Family Education Loan Program (FFELP).</td>
</tr>
<tr>
<td>1993</td>
<td>Federal Direct Loan Program (FDLP)</td>
<td>Direct loans are originated from the government rather than a bank. Schools can choose to participate in the FDLP or the FFELP.</td>
</tr>
<tr>
<td>2006</td>
<td>The Academic Competitiveness Grant</td>
<td>This grant provides additional aid to first and second year college students who completed a tough high school curriculum and maintained a 3.0 college GPA.</td>
</tr>
<tr>
<td>2006</td>
<td>SMART Grant</td>
<td>This grant gives aid to third and fourth year college students who have maintained a 3.0 GPA and are majoring in math, science, or a critical foreign language.</td>
</tr>
</tbody>
</table>
*The Code of Conduct includes:\textsuperscript{72}:

1. Colleges are prohibited from receiving anything of value from any lending institution in exchange for any advantage sought by the lending institution. This severs any inappropriate financial arrangements between lenders and schools and specifically prohibits "revenue sharing" arrangements. Lenders can no longer pay to get on a school's preferred lender list.

2. College employees are prohibited from taking anything of more than nominal value from any lending institution. This includes a prohibition on trips for financial aid officers and other college officials paid for by lenders.

3. College employees are prohibited from receiving anything of value for serving on the advisory board of any lending institution.

4. College preferred lender lists must be based solely on the best interests of the students or parents who may use the list without regard to financial interests of the College. This ensures that preferred lenders will be those the school has determined should be preferred by students as opposed to preferred by the school.

5. On all preferred lender lists the College must clearly and fully disclose the criteria and process used to select preferred lenders. Students must also be told that they have the right and ability to select the lender of their choice regardless of the preferred lender list.

6. No lender may appear on a preferred lender list if the lender has an agreement to sell its loans to another lender without disclosing this fact. In addition, no lender may bargain to be a preferred lender with respect to a certain type of loan by providing benefits to a College as to another type of loan. Colleges must ensure that employees of lenders never identify themselves to students as employees of the colleges. No employee of a lender may ever work in or provide staffing assistance a college financial aid office.

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